# Particle Theory Seminar

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## "Understanding the quark-gluon plasma via dimensional reduction"

**Thursday, July 9, 2009, 11:30**

**WBGB/021**

**Abstract:**

The thermodynamics of QCD is non-perturbative at any temperature due to the confining nature of the static color-magnetic fields. In the deconfined phase, the contributions to the thermodynamical quantities arising from the non-static modes can be estimated in the perturbation theory, whereas this method fails for the static modes due the Linde problem. However, at high temperatures the static modes decouple from the non-static ones, and their dynamics can be described in a simpler three dimensional effective theory, which can be addressed by non-perturbative lattice simulations with moderate computational cost.

In my talk, I discuss the construction and simulations of such effective theories, and in particular the role of the center symmetry near the deconfinement transition.